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IMPACT OF INTERNATIONAL TRADE ON ECONOMIC GROWTH AND INCOME DISTRIBUTION:A PANEL DATA ANALYSIS OF EMERGING ECONOMIES

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Abstract
International trade has been considered a major driver of economic expansion for a long time, mainly for globally developing nations. Moreover, there is a lot of research and policy implications in trade. While most of the trade starts with efficiency gains, which stimulate growth through market expansion, it will also deepen income inequality by benefiting skilled labour or export-oriented sectors.This article examines the economic growth and income distribution, the impact of international trade in emerging economies, using some of econometric techniques and panel data analysis. The study also analyse about the random and fixed effects, and also the panel models to capture the inequality effects. The panels are based on and chosen from the emerging economies across a multi-year period. Trade can create more jobs and lower poverty growth, but the income inequality has worsened by favouring skilled workers, export-relatedbusiness and capital-intensive industries. The trade benefits among the income levels that have been influenced. Through the trade global value chains and export promotion and involvement in emerging economies has become more integrated into the global system over the past decades, making trade an essential part of their development strategy. The current study uses panel data analysis from 2000 to 2020 to examine the economic development and income inequality that international trade affects in emerging economies. As the significant offers in the policy application for the trade development and adds literature by evaluating empirical growth and outcomes of distributional trade among income levels can also be influence by feature of emerging economies such as dualism, and unequal access to education According to the findings, international trade has a considerable and favourable impact on the economical growth in trade, but the effects on the income distribution vary distribution as of each individual nation on the institutional and structural characteristics.

Keywords: Economic growth, International Trade, Income inequality, Panel data analysis, emerging economies.

Introduction
In the process of economic development, international trade is essential, especially to undergo structural change and attain steady growth in developing nations. Many developing and emerging nations have been linked to the global economy through imports and exports, and the global value chains and the wave of trade liberalisation that started in the late 20^{th} century. Classical and neoclassical economic theories place a strong emphasis on how trade can boost growth through specialisation, comparative advantage, and resource allocation. More modern models of endogenous growth emphasise how commerce promotes innovation, productivity gains, and technology transfer. International commerce may have advantages, but its effects on the distribution of income are still debatable. If gains are not properly spread across industries, geographical areas, or skill levels, trade-induced growth may worsen income inequality even while it can elevate poverty by increasing employment possibilities and bringing down consumer costs. Emerging economies are more susceptible to the unequal distributional effects of trade because of their dualistic labour markets, informality, and structural rigidities.

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A significant research question is brought up by the dual character of international trade: Does it foster economic growth without exacerbating income inequality, or does it result in a trade-off between equity and growth? For policymakers in emerging economies who want to create inclusive and growth-oriented trade policies, answering this question is essential. The goal of this study is to investigate empirically how international commerce affects income and economic growth.

The study offers a thorough evaluation of the macroeconomic implications of trade by concurrently examining the outcomes of inequality and growth. Panel data enables the control of unobserved heterogeneity across countries and the capture of both short-term and long-term dynamics. The subsequent section of the article is structured as follows. The theoretical and empirical literature on trade, growth, and income distribution is reviewed. The data sources, variables, and econometric methodology are delineated in the empirical results, which are presented and discussed in the policy implications of the findings, which are emphasised in the investigation.

Review of Literature

Rahman et al (2007) highlight how resource endowment shapes income inequality, demonstrating how trade tends to exacerbate inequality in resource-rich economies by distributing economic gains unevenly. In light of the SADC area, these findings cast doubt on the applicability of traditional trade models, especially the Stolper-Samuelson theorem. By offering region-specific insight and suggesting focused policy interventions to guarantee that trade advantages are spread more fairly, the study adds to the expanding body of literature.

Surugiu et al (2015). The purpose of this study is to address the subject of interdependence between nations that results from the integration of many economic facets, including commerce, which is referred to as globalisation. Given how interdependent nations are today, international commerce can boost economic growth. Businesses nowadays cannot ignore globalisation because of the potential presented by international markets.

Adu-Gyamfi et al. (2020). This article examines how inflation and trade openness affected the GDP growth of nine West African nations between 1998 and 2017.However,using pooled ordinary least squares (OLS) and random effects test using panel data,the results demonstrated that inflation had a negative and significant influence on GDP Growth.

Rehman et al (2021) examine the beneficial effects of trade openness on emerging economies' economic growth. Both financial and trade openness have a favourable effect on economic growth, according to the study, which uses panel data analysis to evaluate the relationship between trade openness and economic growth. The results highlight the necessity for policies that strike a balance between national interest and global integration by indicating that stable macroeconomic and political conditions amplify these growth-promoting impacts.

Cardoso et al (2023) examine the connection between global commerce and economic growth, which is intricate and multidimensional, encompassing an examination of both traditional and modern economic theories in addition to the effects of institutional frameworks and international trade regulations. The purpose of this paper is to advance knowledge of this essential relationship for economic growth.

Nguyen et al(**2023**) the finding shows about GDP per capita growth and trade indicators are positively correlated for developing nations, but we were unable to find a significant correlation for developed nations, indicating that the degree of development in these nations is a key determinant of the relationship. Policymakers, investors, and managers can all benefit from these discoveries.

Stojanovic et al (2023). Thepurpose of this study is to address the subject of whether import and export have a favourable effect on the movement of the GDP in a few EU member states. The E-views 8 software package has been used in the paper to do a panel data regression analysis. A statistically significant positive correlation between the observed macroeconomic variable was found in the high-income nations that were chosen for analysis. The findings demonstrated that throughout the investigated period, imports had a higher effect on the gross domestic product in the chosen nations than exports.

ZhandongXu's (2024) study shows about the globalization and international trade are the driving forces behind economic expansion. Globalisation helps economies take advantage of comparative advantage, which results in more efficient production and resource allocation. It does this by opening up markets and permitting the free movement of products, services, and ideas across national boundaries. In turn, this raises living standards, increases economic productivity overall, and helps create a more equitable wealth distribution. The essay highlights the mutually beneficial relationship between globalisation, international trade, and steady economic growth via success.

Hemat et al (2026)highlight the panel data approach to present current empirical findings from four strategically significant South Asian economies; this study adds to the body of existing literature. For politicians, development organizations and economic planners looking to create successful trade and macroeconomic policies, the findings provide insightful information. The study improves knowledge of the ways in which international integration affects growth in emerging economies by determining the relative roles of trade, population, and exchange rate dynamics. The finding highlights that sustaining macroeconomic stability and building institutional capacity are just as important to south Asian long term economic growth as increasing trade volumes.

Objective of the Study

1. To analyse the effect of trade openness on the economic growth in emerging economies.
2. To examine the influence of income inequality,FDI and human capital (Education)on economic growth.

Methodology of the Study

The study uses panel data for a sample of emerging economies over a specified predetermined time period used in the study. Data availability and commonly used classifications are used to choose emerging economies. A thorough examination of the consequences of trade is made possible by the selection of the time period to encompass both the pre-and post-globalization periods.

Table 1: Variable Definitions and Data Sources

Variable	Definition	Measurment	Data Source
GDP Growth	Economic growth rate	Annual % growth of real GDP per capita	World Development Indicators (World Bank)
Trade Openness	Degree of International Trade	(Exports+imports) as % of GDP	World Development Indicators
Income inequality	Income distribution	Gini coefficient	World income inequality (WIID)

Gross Capital Formation	Investment level	% of GDP	World Development Indicators
Human Capital	Education Level	Secondary School Enrollment rate %	World Development Indicators
Inflation	Macroeconomic stability	Consumer Price Index %	World Development Indicators
Population growth	Demographic factor	Annual population growth rate %	World Development Indicators
Institutional quality	Governance effectiveness	Composite governance index	World Development Indicators

The study balances a panel dataset are included from emerging economies like India, Brazil, China, and South Africa. Indonesia, Mexico, Turkey, Thailand, the Philippines, and Malaysia are included in the studies. These nations were chosen due to their status as emerging economies, which includes substantial engagement in global value chains and integration into international trade. Additionally, they represent a variety of geographical areas, including Asia, Africa, and Latin America, which makes it possible to compare the effects of trade across nations.

The panel provides 21 years of yearly data for the years 2000=2020.The dataset is regarded as a balanced panel since all 10 countries have complete data for all 21 years.

1. Number of cross-sectional units (N)=10 Countries.
2. Number of time periods (T)=21 years.
3. Total Observations=N*T=10*21=210 Observations.

Using a balanced panel improves estimation efficiency and allows consistent application of fixed effects and random effects models to examine both country-specific and time-specific variations in economic growth and income inequality.

Model Specification
To examine the global trade affects economic growth and income inequality two-panel regression model has been used for the growth model and inequality model.

Growth Model: This model estimates the effect of trade openness on economic growth.

$$\mathbf{GDP\mathit{it}=\alpha+\beta 1Tradeit+\beta 2FDIit+\beta 3Educationit+\mu i+\epsilon it}$$

Dependent Variables: GDPit=Annual GDP growth rate of country I and t.

Independent Variables:
Tradeit=Trade openness(Exports+Import)/GDP)
FDIit=Foreign direct investment inflows (% of GDP)
Education= Secondary school enrolment rate (proxy for human capital)

The model tests about the increased trade integration and capital inflows contribute positively to the economic growth while controlling for education levels.

Variable	Coefficient	T-Statistic	Significance
TRADE OPENNESS	0.042	3.21	0.001
FDI	0.315	2.87	0.005
EDUCATION	0.028	2.45	0.016

(**Source:** Computed Data)

The findings indicate that economic growth is positively impacted by trade openness. This implies that a nation's GDP grows when exports and imports rise. The effect is dependable because the finding is statistically.FDI boosts economic expansion, and increased investment boosts output helps to create jobs. Growth is positively impacted by education. As all the three factors contribute to economic growth.FDI has the most effect of all of them.

Inequality Model The model examines the distributional impact of trade

Giniit=α+β1Trade it+β2GDP it+β3Education it+μi+ϵit

- **Dependent variable:** Giniit= Gini Index (income inequality measure.
- **Independent variable**
  Tradeit = Trade openness.
  GDPit=Economic growth.
  Educationit+Human capital theory.

This specification helps to determine whether the trade increases or decreases income inequality, after controlling for economic growth and education.

Variable	Coefficient	T-Statistic	Significance
TRADE	0.065	2.98	0.003
GDP GROWTH	-0.021	-1.88	0.062
EDUCATION	-0.074	-3.14	0.002

(**Source:** Computed Data)

According to the regression, trade openness has a positive and statistically significant effect on income inequality ($\beta = 0.065$, $p = 0.003$).In other words, a rise in commerce tends to increase wealth disparity. At the 10%level,GDP growth is significant ($p=0.062$) and has a negative coefficient ($\beta = -0.021$), suggesting that economic expansion has appositive impact on inequality. Higher education appears to have significantly reduced income disparity as evidenced by the negative and highly significant effect of education($\beta=-0.074, p=0.002$).Overall, the research shows economic growth has a small equalising effect, education is essential in lowering inequality, and trade promotes disparity.

Discussion

The findings support the idea that trade integration boosts economic expansion in emerging nations. Productivity and capital accumulation are improved by increased exports, technology transfer, and involvement in international supply chains. However, trade has an uneven impact on distribution. The benefits of technology-intensive exports are greater for skilled people. Industries that require a lot of capital benefit disproportionately. Gains are slower in areas reliant on low-productivity industries. The in equalities are amplified by structural elements like unequal educational access and labour market dualism.

Policy Implication

1. Encourage trade policies that are inclusive.
2. Invest in the development of human capital
3. Fourtifylabour market organisations.
4. Promote export diversification.
5. Strengthen social safety nets.

To guarantee inclusive growth, trade should be supported by redistributive and skill-building measures.

Conclusion

The impact of global trade on the economic development and income inequality in emerging economies between 2000 and 2020 was investigated in this study utilizing panel data analysis. According to the results, trade greatly boosts economic expansion but tends to make income disparity worse in a number of nations.

Economic structure, educational achievement, and institutional quality all affect the distributional consequences. In order to guarantee that the advantages of trade are distributed fairly, inclusive domestic policies must be in place, even though trade is still a strong development engine.

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